

## WHAT IS CLAIMED IS:

1. A method for making a plurality of waveguide resonator devices, the method comprising:  
positioning a precursor resonator structure at a fixed separation from a plurality of waveguides; and  
after the precursor resonator structure has been positioned relative to the waveguides, dividing the precursor resonator structure into a plurality of separate resonators, the precursor resonator structure being divided at locations between the waveguides.
2. The method of claim 1, wherein the precursor resonator structure is divided by cutting the precursor resonator structure at locations between the waveguides.
3. The method of claim 2, wherein the precursor resonator structure is mechanically cut with an abrasive tool.
4. The method of claim 3, wherein the abrasive tool is a wire saw.
5. The method of claim 1, wherein the precursor resonator structure is elongated.
6. The method of claim 5, wherein the precursor resonator structure is cylindrical.
7. The method of claim 5, wherein the precursor resonator structure is tubular.
8. The method of claim 5, wherein the precursor resonator structure is cut at a plurality of locations spaced-apart along a longitudinal axis of the precursor resonator structure.
9. The method of claim 1, wherein the precursor resonator structure includes drawn glass or plastic.
10. The method of claim 1, wherein the precursor resonator structure includes an optical fiber.

11. The method of claim 1, wherein the precursor resonator structure includes a glass or plastic capillary.
12. The method of claim 1, further comprising depositing the waveguides on a substrate, depositing a spacer layer over the waveguides, and fixing the precursor resonator structure relative to the waveguides by securing the precursor resonator structure to the spacer layer.
13. The method of claim 1, wherein the precursor resonator structure is positioned at a fixed spacing relative to a plurality of sets of waveguides, and wherein the precursor resonator structure is divided at locations between the sets of waveguides such that the separate resonators are coupled to separate sets of waveguides.
14. A method for fabricating a plurality of waveguide resonator devices, the method comprising:
  - providing a precursor resonator structure; and
  - cutting the precursor resonator structure into a plurality of pieces to provide a plurality of ring resonators.
15. The method of claim 14, wherein the precursor resonator structure comprises an optical fiber.
16. The method of claim 14, wherein the precursor resonator structure comprises a capillary.
17. The method of claim 14, wherein the precursor resonator structure comprises a coated optical fiber.
18. The method of claim 14, wherein the precursor resonator structure is fixed adjacent to the wave guides prior to cutting the precursor resonator into the ring resonators.

19. The method of claim 14, wherein the precursor resonator structure comprises an optical fiber coated with a material adapted to encourage bacterial growth.
20. The method of claim 14, wherein the precursor resonator structure comprises a tube filled with a material having a refractive index that can be modified with an applied field.
21. A waveguide ring resonator device comprising:
  - a waveguide;
  - a ring resonator fixed relative to the waveguide, the ring resonator including a length of optical fiber.
22. The device of claim 21, further comprising a spacer layer between the ring resonator and the waveguide.
23. The device of claim 21, wherein the ring resonator includes a coating about the optical fiber.
24. The device of claim 23, wherein the coating is adapted to promote analyte attachment.
25. A waveguide ring resonator device comprising:
  - a waveguide;
  - a ring resonator fixed relative to the waveguide, the ring resonator including a length of optical capillary.